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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/636,161

Filing Date: August 07, 2003

Appellant(s): SARRAF ET AL.

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Kevin M. Mason  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 03/13/2008 appealing from the Office action mailed 06/14/2007. This also hereby vacates the previous incomplete examiner's answer mailed 05/30/2008, because the previous examiner's answer did not include the all rejected claims together with the appealed claims.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,292,917

SINHA

9-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections – 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-5, 7-14, 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sinha (6,292,917).

**Regarding claim 1,**

Sinha (6,292,917) discloses a method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, said method comprising the steps of:

allocating a unique frequency partition to each of said sub-streams (102&104 L, 102&104 U-fig.2) for a plurality of consecutive time slots (figs.1-2, see also, col.2, line 55; col.3, line 22, col.3, line 60-col.4, line 7);

allocating a unique time slot to each of said plurality of sub-streams (col.3, line 22, col.3, line 60-col.4, line 7; col.5, lines 7-16); and

transmitting said sub-streams to a receiver (fig.5).

**Regarding claim 2,** Sinha further discloses wherein said sub-streams include at least two core streams (sub-streams I, figs.1-2) and at least two enhancement streams (sub-streams II, figs. 1-2).

**Regarding claim 3,** Sinha further discloses wherein said core sub-streams (sub-streams I, figs.1-2) have a maximum separation in the time domain (separated by rate for time domain in fig.2, col.5, lines 14-col.6, line 19).

**Regarding claim 4,** Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system

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and said core sub-streams (sub-streams I, figs.1-2) have a maximum separation in the frequency domain (separated by FM signal-100, figs. 1-2; col.4, line 29-col.5, line 17 & col.6, lines 20-39).

**Regarding claim 5**, Sinha further discloses wherein said multi-stream digital audio broadcasting system is a hybrid IBOC (In-Band-On-Channel) system and said core sub-streams are transmitted in the frequency domain in the innermost side bands (figs.1-2, sub-streams I as core/innermost sidebands).

**Regarding claim 7**, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said core sub-streams (sub-streams II) are separated by a data stream (FM signal 100, figs.1-2).

**Regarding claim 8**, Sinha further discloses wherein no two sub-streams (sub-streams I & II) associated with the same audio segment are transmitted in the same time slot (interleaved in time, see col.2, line 64-col.3, line 22, figs.1-2).

Regarding claim 9, Sinha further discloses wherein a unique time slot is allocated to each of said sub-streams by introducing a delay between each of said sub-streams (col.2, line 58–col.3, line 20; col.9, lines 48–60).

Regarding claim 10,

Sinha discloses a transmitter (fig.5) in a multi-stream digital audio broadcasting system, comprising:

a modulator (216) for allocating a unique frequency partition to each of two or more sub-streams for a plurality of consecutive time slots;

a delay circuit (212, 214) for allocating a unique time slot to each of said two or more sub-streams (see also col.9, lines 48–60); and

a transmitter (202) for transmitting said two or more sub-streams to a receiver (204).

**Regarding claim 11**, Sinha further discloses wherein said two or more sub-streams include at least two core streams (sub-streams I) and at least two enhancement streams (sub-streams II) (figs.1-2).

**Regarding claim 12**, Sinha further discloses wherein said core sub-streams (sub-streams I) have a maximum separation in the time domain (col.9, lines 48-60).

**Regarding claim 13**, Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said modulator provides a maximum separation of said core sub-streams (sub-streams I) in the frequency domain (figs.1-2; col.4, line 29-col.5, line 17 & col.6, lines 20-39).

**Regarding claim 14**, Sinha further discloses wherein said multi-stream digital audio broadcasting system is a hybrid IBOC (In-Band-On-Channel) system and

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said modulator allocates said core sub-streams in the frequency domain to the innermost side bands (figs.1-2, sub-streams I as core/innermost sidebands).

**Regarding claim 16,** Sinha further discloses wherein said multi-stream digital audio broadcasting system is an all-digital IBOC (In-Band-On-Channel) system and said core sub-streams (sub-streams I) are separated by a data stream (FM signal 100, figs.1-2).

**Regarding claim 17,** Sinha further discloses wherein no two sub-streams associated with the same audio segment are transmitted in the same time slot (interleaved in time, col.2, line 57-col.3, line 22; col.4, lines 2-19).

**Regarding claim 18,** Sinha further discloses wherein a unique time slot is allocated to each of said two or more sub-streams by introducing a delay between each of said two or more sub-streams (col.2, line 58-col.3, line 20; col.9, lines 48-60).

***Allowable Subject Matter***

3. Claims 6 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**(10) Response to Argument**

Appellant's arguments filed 03-13-2008 have been fully considered but they are not persuasive.

A/. Appellant argued regarding claims 1 and 10 that Sinha does not disclose or suggest "allocating unique frequency partitions to each of the sub-streams for a plurality of consecutive time slots, and allocating a unique timeslot to each of the plurality of sub-streams".

In reply, appellant is directed to figures 1 and 2 in Sinha wherein the unique frequency partitions of the low sideband 102L and 104L, and the upper sideband 102U and 104U, and the sets of sidebands 102L, 102U, 104L and

104U (i.e., 102L & 102 U and 104L & 104U are sub-streams), wherein the channels may correspond to different timeslots, see col.3, lines 5-6 & col.6, lines 24-26. Hence, Sinha does disclose the claimed limitations of "allocating unique frequency partitions (low sidebands 102L & 104L and upper sidebands 102U & 104U) to each of the sub-streams (102L, 104L, 102U, 104U) for a plurality of consecutive time slots (i.e., channels may corresponding to different time slots, col.3, lines 5-6, which could be consecutive time slots, emphasis added), and allocating a unique timeslot (different timeslots, col.3, lines 5-6) to each of the plurality of sub-streams (i.e., 102L, 102U, 104L, 104U sub-streams of channel partitions).

B/. Appellant argued regarding claims 8 and 17 that Sinha does not disclose or suggest wherein no two sub-streams associated with the same audio segment are transmitted in the same time slot.

In reply, appellant is directed to figures 1 and 2 in Sinha wherein no two sub-streams (i.e., 102L & 104L low sub-streams, 102U & 104U upper sub-streams) associated with the same audio segment are transmitted in the same

time slot (col.5, lines 5-6, wherein the channels may correspond to different timeslots). Hence, the each of 102L, 102U, 104L, 104U sub-streams of channels correspond to different timeslots, thus no sub-streams transmitted in the same time slot, emphasis added.

C/. Appellant argued regarding claims 9 and 18 that Sinha does not disclose or suggest wherein a unique time slot is allocated to each of said sub-streams by introducing a delay between each of said sub-streams.

In reply, appellant is directed to figures 1 and 2 and wherein the characteristic of a particular channel or channels maybe be made to vary as function of time (col. 9, lines 58-60); and channels correspond to different time slots (col.3, lines 5-6). Hence, Sinha does disclose the claimed limitations wherein a unique time slot (different time slots) is allocated to each of said sub-streams (i.e., 102L & 104L, 102U & 104U in figures 1-2) by introducing a delay (by varying a particular channel or channels as function of time, e.g., delaying in time-emphasis added) between each of said sub-streams (see also col.6, lines 31-34, wherein first channel comprises 102L & 104L sub-

bands/streams, the second channel comprises 102U & 104U sub-bands/stream, and each of the sub-streams of the channels are being varied as function of time, e.g., delaying in time-emphasis added).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Examiner, Art Unit 2616

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